

De Moleyns Lagoon - stakeholder collaboration leads to successful environmental outcomes

De Moleyns Lagoon is an environmentally and culturally important wetland area situated within a floodplain dominated by agriculture. It is home to a large variety of vegetation communities, including the Endangered Regional Ecosystem *Melaleuca viridiflora* woodland. Local stakeholders have worked together for many years to restore and transform the site to an area which is now a valued natural habitat.

About the wetland

De Moleyns lagoon is located within an existing 153ha reserve, near the township of Mirani. It is part of the Sandy Creek sub-catchment.

The reserve is managed by Mackay Regional Council and remains an important nature refuge within the broader catchment.



De Moleyns lagoon.

In 2012, after consultation with local stakeholders, the Queensland Government's Wetlands Program (QWP) and the Department of Agriculture & Fisheries (DAF) initiated a project to restore De Moleyns lagoon.

Over the last six years, stakeholders have worked together to restore the wetland area. Their collaborative efforts, ongoing investment and dedication has been key in achieving the significant transformation of the site.

One of the first activities undertaken was to remove water weeds from the lagoon. The magnitude of this task is clearly evident in the before and after aerial images in the next column.



Before: Google Earth September 2011



After: Google Earth January 2017

Removal of most of the water weeds has resulted in improvements to water quality and the overall biodiversity of the lagoon.

Other notable achievements over the last six years include:

- Finalisation of the De Moleyns Management Plan;
- Continuation of revegetation projects and weed management/ maintenance;
- Vegetation surveys; and
- Community field days.

Wildlife

De Moleyns lagoon is an isolated area and an important refuge for local native wildlife. Much of the surrounding landscape is dominated by sugar cane production and there is limited native habitat in a corridor linking the reserve to other remnant vegetation.



Fresh wallaby paw prints in the mud along the water's edge of the lagoon.

Evidence of native fauna such as macropods and small mammals can be found on site. It is not uncommon to come across snakes and other reptiles.

Since the removal of the water weeds, local visitors have observed that aquatic vertebrate populations and species diversity have increased.



A white tail water rat swimming across the lagoon.

Birdlife

A visit to the De Moleyns lagoon is a must for any bird lover.

Birdlife Mackay members have been visiting the site for over eight years.



Little-black cormorants take to the sky at sunrise over De Moleyns lagoon.

Records indicate that prior to restoration works the site had a reasonable population of bush birds, but very few water birds were observed using the lagoon.



Forest Kingfisher.

Since the lagoon has been restored there has been significant changes in bird species, bird populations and bird behaviours in and around the lagoon.

Paperbark trees growing in the shallows along the edge of the lagoon are being used as nest sites for water birds, such as the australasian darter, great egret and little pied cormorants.

Bar-breasted honeyeater, leaden flycatcher and willie wagtail nests are also now seen in these trees every year.



Bird nest on the reserve.

Large numbers of plumed whistling ducks are often seen on the water along with smaller numbers of wandering whistling ducks, pacific black ducks, grey teal, australasian grebe, little black cormorants and radjah shelducks.

Since its restoration, it is not unusual to see more than fifty different species during a visit to De Moleyns lagoon.



A pair of pink eared ducks, only recently sighted at De Moleyns lagoon in 2018. Photo: Bill McLean, a member of Birdlife Mackay.

President of Birdlife Mackay, Daryl Barnes has worked closely with all of the stakeholders involved in the De Moleyns lagoon project and is delighted with the result of the restorations.

He noted that trees planted in 2013 are now having an obvious effect on the biodiversity of the site, suppressing weed growth in the area, attracting insects, which in turn attracts birds to the site. Removing water weeds from the lagoon has resulted in a return of water birds to the area which indicates an improvement in the habitat. The return of water birds is also an indication that water quality has improved and fish populations have increased in the lagoon. The change at the site over the last six years is remarkable.



Little-black cormorants.

De Moleyns Birds List - Top 20

Birdlife Mackay have put together a list of birds to look out for whilst visiting the lagoon. It is not unusual for visitors to see more than 50 different species and over 300 birds at any one time.

1. Plumed whistling duck
2. Pacific black duck
3. Purple swamphen
4. Dusky moorhen
5. Little pied cormorant
6. Eastern great egret
7. Australian white ibis
8. Masked lapwing
9. Black-fronted dotterel
10. Whistling kite
11. Peaceful dove
12. Rainbow lorikeet
13. Blue-winged kookaburra
14. Red-backed fairy-wren
15. Brown honeyeater
16. Blue-faced honeyeater
17. Grey fantail
18. Leaden flycatcher
19. Chestnut-breasted manikin
20. Magpie-lark



Two black-fronted dotterels and a red-kneed dotterel standing in the shallows of the lagoon.



Little friarbird.

Traditional Owners

The Traditional Owners of this area are the Yuwibara people. Their country extends from Midge Point to Cape Palmerston along North Queensland coast and inland as far as the Connors Range.



Yuwibara elder, George Tonga, visiting the De Moleyns Lagoon wetland reserve.

The Yuwibara people are passionate about preserving their land and sea for future generations. They have strong connections to country and work within the community to pass on traditional culture and knowledge to their younger generation. The De Moleyns Lagoon is an area of cultural significance for the Yuwibara people. The lagoon would have been an important place for their ancestors to hunt and gather.

Yuwibara elder, George Tonga, said that it was a very special feeling to be on country and seeing the restored lagoon.

Conservation Volunteers Australia

Conservation Volunteers Australia (CVA) have been involved with De Moleyns lagoon since 2010, engaging the community, and providing environmental training to young people in the Mackay region.

CVA North Queensland Manager, Caitlin Davies, has been a part of CVA's efforts since the beginning and started volunteering with CVA in 2010 when she moved to Mackay. One of the first projects she was involved in was building the picnic tables and benches that are now a part of the site.

From 2013 to 2015, CVA secured funding through a Queensland Government Grant to carry out revegetation and weed maintenance works at De Moleyns lagoon. They have achieved some remarkable outcomes including :

- Planting 460 trees over an area of 1127m²;
- Removing invasive weed species over an area of 17,006m²;
- Removing 583kg of debris from the site;
- Collecting 50kg of native seeds and
- Engaging 149 volunteers during the project.

The total project investment was \$30,000 through the government grant and over \$35,000 through CVA as in-kind support and effort.



Green Army and CVA volunteers working together at a tree planting day at De Moleyns lagoon, March 2016. Photo: Conservation Volunteers Australia.

From September 2014 to June 2017, CVA managed the Green Army riparian team who would spend at least a week every month onsite at De Moleyns lagoon conducting revegetation and weed maintenance activities.

This regular presence over almost a three year period has been a critical component in achieving success at the site.



Recent weed maintenance carried out at one of the revegetation sites.

The site is home to one of the largest remnants of the endangered regional ecosystem broad-leaved paperbark (*Melaleuca viridiflora*) woodland (RE 8.3.2) in the Mackay region.

In the first half of 2018, CVA volunteers were engaged by Reef Catchments to conduct vegetation surveys in order to develop a baseline data set. The data set will be used to measure and monitor the long-term vegetation changes and will inform future management actions.

Mackay Regional Council

Mackay Regional Council (MRC) commenced management of the reserve in 2008 and registered the site as a 'Land for Wildlife' property in 2009. Since that time MRC has undertaken weed control and management activities in and has engaged contractors to carry out maintenance work including weed control. MRC has also worked closely with and supported various project partners who have received funding to undertake restoration, monitoring and education projects at the site.

In 2013, MRC received funding through Reef Catchments for the mapping and control of giant rats tail grass within the reserve. Council also received funding (through DAF) for weed management, including the removal of water weeds such as water hyacinth and water lettuce from the lagoon.

The works continued until December 2014 and complemented the re-vegetation and water quality monitoring work being carried out by other stakeholders during that period.

In 2014, MRC commissioned the development of a management plan for De Moleyns lagoon. The management plan provides an assessment of the site and recommendations for the rehabilitation and long-term management of the reserve. The management plan was completed in 2015 and now helps to guide current and future projects at the site.

MRC is committed to continuing to invest in De Moleyns lagoon to support the restoration of biodiversity values through weed control, ecological burning, monitoring and pest management. Future goals for the site include promoting the lagoon as an area to visit for nature-based recreation, installation of interpretive signage and visitor facilities, and establishing wildlife corridor connections to other areas of remnant vegetation.



Removal of water hyacinth and water lettuce from De Moleyns lagoon, October 2013. Photo: Shelley Molloy, Mackay Regional Council.

Reef Catchments

Reef Catchments are the local natural resource management group for the Mackay-Whitsunday region. They have been integral in facilitating and supporting the positive environmental changes at the De Moleyns lagoon.

Since 2013, Reef Catchments have been funding projects at the lagoon through support from the Australian Government's National Landcare Program. Some of the works funded by Reef Catchments includes:

- Management planning;
- Weed control of terrestrial and aquatic invasive species;
- Revegetation projects;

- Knowledge sharing and awareness raising events with Traditional Owners, school groups and the wider community; and
- Water quality monitoring.

Reef Catchments, in partnership with MRC, are currently undertaking weed control within the reserve. This aims to reduce fuel loads and create firebreaks for a mosaic controlled burn when environmental conditions are favourable, with minimal risk to native plants and wildlife.



Revegetation projects and weed maintenance along the lagoon has been successful in increasing biodiversity values at the site.

Katrina Dent, General Manager of Reef Catchments said that De Moleyns has rare environmental values and human history. The work achieved here should be celebrated as a leading example of positive community collaboration - overlapping community interests and stakeholders with a shared vision of improvement for the future.

Department of Agriculture & Fisheries

The department has continued its interest in this wetlands area through the Water Agriculture: Training, Extension and Resources (WATER) project.

The location of this wetland provides opportunities to do on-ground activities that can help improve the biodiversity in and around the wetland and most importantly, the functioning of the wetland system. These actions have helped to improve the water quality of the run-off that flows through the lagoon.

The future

With seed funding provided by DAF as part of the Queensland Wetlands Program and all the dedication and contributions from partners, De Moleyns lagoon has been transformed into something that all the partners are proud of. Since the initial discussions over five years ago, local stakeholders have collaborated to restore and protect the wetland values at De Moleyns lagoon. The development of a management plan for the site, implemented by Mackay Regional Council, means that the site will continue to be managed and used as an important recreation site by the community.



A recent stakeholder visit to the De Moleyns lagoon.

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It is a follow up to the original case study:

<https://wetlandinfo.des.qld.gov.au/resources/static/case-studies/moleyns-lagoon-240114-v1.pdf>

The Queensland Wetlands Program supports projects and activities that result in long-term benefits to the sustainable management, wise use and protection of wetlands in Queensland. The tools developed by the Program help wetlands landholders, managers and decision makers in government and industry.

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